

outside of the epipleural margin, that of 2 short, of 3 much longer and the process of 4 longest and with strongest curve.

Male.—Slightly smaller, otherwise externally similar to female.

Type locality.—Greenbrier, Great Smoky Mountains, Tenn.

Types.—Holotype (female), allotype (male) and six paratypes in the U. S. National Museum. Several additional paratypes in the collection of author. All types taken from spring-fed mountain stream of very cold water which flows into the Right Fork of Little Pigeon River about two miles above Greenbrier, Tenn., and near the "Big Barn," at about 2,000 ft. elevation, June 12, 1931. Species was taken from a similar stream at Rocky Bottom (elevation 1,800 feet) near Clemson College, S. C., July 9, 1931. May be separated from other Eastern species of *Limnius* by the solid color of the elytra. Drawings for the plate were made by Miss Velma Knox.

EXPLANATION OF PLATE.

Limnius cryophilus Musgrave.

<i>an</i> antenna	<i>m</i> mandible	<i>la</i> labium
<i>ma</i> maxilla	<i>pn</i> pronotum	<i>ps</i> prosternum
<i>a</i> abdomen, ventral aspect		
<i>al</i> lateral aspect to show coadaptation of elytra and margins of sternites		

TWO NEW SPECIES OF PHANOMERIS FOERSTER (HYMENOPTERA, BRACONIDAE) PARASITIC ON LEAF-MINING SAWFLIES.

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The only character by which *Phanomeris* Foerst. appears to be distinguishable from *Exothecus* Wesm. is the presence in the former of a distinctly impressed suture between the second and third abdominal tergites. This difference may not be of generic importance, but the material I have seen appears to be separable into two groups on this character, and pending a revision of the Exothecinae I am inclined to recognize *Phanomeris* as distinct. Up to the present only a single Nearctic species, *mellipes* (Prov.), has been referred to this genus; it was originally described in *Opius* but has been removed to *Phanomeris* by Gahan.¹ I have not seen this species, which is known only from the unique type, but on the basis of the original description, and notes made by Gahan on an examination of the type, it seems to differ from both species described here in lacking the median longitudinal carina of the first tergite, in

¹Proc. U. S. Nat. Mus., vol. 49, 1915, p. 92.

having the second tergite aciculate only at base, and in having the face more or less bicarinate medially.

Phanomeris metalli, new species.

Very similar to the genotype, *abnormis* (Wesm.), which is considered a synonym of *dimidiatus* (Nees). The propodeum and metapleura, however, are mostly smooth and shining, while in the genotype they are finely closely rugulose and opaque; furthermore, the second abdominal tergite is more broadly smooth laterally in the present species, only the middle two-thirds being sculptured.

Female.—Length, 3 mm. Head transverse, about as wide as thorax; face broader than long, receding, mostly smooth, but with a finely shagreened opaque area each side between mouth-opening and eye; malar space at least as long as basal width of mandible; frons, vertex, temples, and cheeks polished; ocell-ocular line longer than postocellar line, but less than twice diameter of an ocellus; occipital carina very narrowly erased medially; temples rounded; antennae longer than body, 38-segmented; first flagellar segment scarcely longer than second. Thorax not higher than wide; pronotum dorsally with a large, deep, median fovea; notauli sharply impressed anteriorly, smooth, becoming obsolete posteriorly; mesoscutum, scutellum, sides of pronotum, and mesopleura entirely polished; scutellar furrow narrow, not distinctly foveolate; propodeum narrowing behind, smooth and shining, a median carina on basal half, lateral margins and apex weakly rugulose; stigma long, acuminate; radius arising from distinctly before middle of stigma and attaining extreme apex of wing; nervulus postfurcal by nearly its length; recurrent entering first cubital cell; second abscissa of radius twice as long as first and a little longer than first intercubitus; second cubital cell narrowing a little outwardly; radiella wanting; cubitella distinct, complete; mediella slightly shorter than basal abscissa of basella; postnervellus distinct, inclivous. Abdomen about as long as thorax, subsessile, broadening strongly to third tergite where it is distinctly broader than thorax; first tergite longer than broad at apex, somewhat elevated down middle and sloping gradually to lateral margins, finely longitudinally rugulose except for a small triangular smooth basal area which is margined by carinae that meet behind to form a more or less distinct median carina; second tergite transverse but longer than third, the middle two-thirds completely closely longitudinally rugulose aciculate, shining; third and following tergites polished, the third with a row of elongate punctures at extreme base medially; ovipositor sheaths about as long as first tergite.

Black; palpi yellowish white; mandibles and scape yellow; legs including coxae pale yellow, except apical segment of anterior and middle tarsi, apices of hind tibiae, and their tarsi entirely, which are blackish; broad lateral margins of second and following abdominal tergites, also apex of third, and the entire venter of abdomen testaceous; wings hyaline, stigma and veins brown.

Male.—A little more slender than female, the abdomen in its widest part scarcely wider than thorax; third, fourth, and fifth tergites yellowish, more or less brownish medially; apical tergites brown; antennae of allotype 38-segmented.

Type locality.—Fredonia, N. Y.

Type.—U. S. N. M. Cat. No. 44061.

Host.—*Metallus rubi* Forbes mining leaves of blackberry.

Described from 35 females and 14 males reared by D. M. Daniel.

The number of antennal segments in the paratypes ranges from 34 to 39.

Phanomeris phyllotomae, new species.

Also very similar to the genotype but distinguished especially by the longer antennae, the somewhat longer ovipositor sheath, which is about as long as the basal segment of the posterior tarsus, the absence of lateral reddish-yellow markings on the abdomen, and in having the basal half of the third tergite finely sculptured and opaque. It agrees with all details of the foregoing description of *metalli* except as follows:

Female.—Length 3.5 mm. Temples and cheeks gradually receding, scarcely convex; antennae much longer than body, 41-segmented in type; first flagellar segment nearly one and one-half times as long as second; scutellar furrow not very narrow, distinctly foveolate; propodeum completely finely rugulose and opaque, with a poorly defined median longitudinal carina; nervulus postfurcal by about its own length; abdomen broadening to fourth tergite; first tergite very finely, not distinctly longitudinally, rugulose, and behind the smooth basal triangular area with a rather prominent keel which scarcely attains apical fourth of tergite; second tergite completely, finely but closely, longitudinally rugulose and opaque; third very finely rugulose on basal half.

Body entirely black except for a narrow more or less distinct reddish piceous band on third tergite just before apex; scape, pedicel, and basal segments of antennal flagellum brown.

Male.—Abdomen hardly as broad as thorax; the apical margins of third and fourth segments broadly transparently yellow; fifth more or less brownish at apex; rest of abdomen black; antennae of allotype 41-segmented, scape, pedicel, and two or three basal flagellar segments yellow.

Type locality.—Weitersfelden, Austria.

Type.—U. S. N. M. Cat. 44062.

Host.—*Phyllotoma nemorata* Fallén.

Five specimens of each sex reared in June, 1931, at the Gipsy Moth Laboratory, Melrose Highlands, Massachusetts, under No. 13618. A small number of adults was liberated in an infestation of *P. nemorata* at North Conway, New Hampshire.

In the paratypes the number of antennal segments ranges from 38 to 45.
